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# Resource Planning for Detector Operations and Development

James Strait

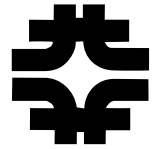
Fermilab

March 29, 2005

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# Particle Physics Division

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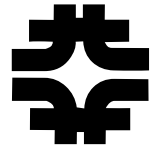


## The Particle Physics Division:

- Supports the experimental and theoretical physics research program of the lab and its users, in particle physics and related areas.
- Provides support to the Accelerator Division in maintaining and upgrading the accelerator complex.
- Provides a home for certain lab- or community-wide services.

# Scope of this Review

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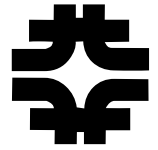


Detector operations support covered today:

- CDF and D0 operations
- CDF and D0 RunIIb upgrades
- CMS base support
- BTeV – closeout of R&D program
- Analysis of completed experiments (KTeV, HyperCP, FOCUS, DONUT,...)
- SY120 experiments – MIPP and Test Beam
- MINOS and MiniBooNE
- Technical Facilities and other Programmatic Support
- Building Maintenance, ES&H, Divisional Mgmt.

# Not in this Review's Scope

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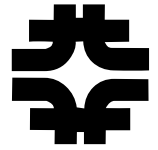
Other core parts of the program not covered today:

- Particle and Astrophysics Theory
- Support of non-accelerator experiments (Auger, CDMS, SDSS)
- US CMS Construction and M&O Programs
- R&D towards future experiments (MINERvA, DES, NOvA, ILC detectors,...)

# Resource Planning

## “Boundary Conditions:

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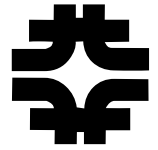
Serious planning is required to ensure that:

- Resources are delivered in a timely way.
- Staff support includes the right people.
- Needs of the different experiments are balanced.
- Needs of direct operational support are balanced with maintenance of key facilities.
- Operations support is balanced with other missions of the PPD (Theory, R&D for future initiatives, support for accelerator operations and development, etc.).

This must be done in the context of limited (and declining) financial support.

# M&S Budgets for Ops (1)

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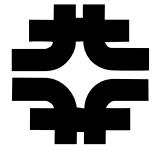


M&S budget development starts “bottoms-up.”

- Each experiment submits a requested budget for the current and subsequent FY's.
- Support of guests and visitors, crucial for the operation of D0 and CDF, is also considered.
- Budget requests to support technical facilities and Divisional management are also collected.

# M&S Budgets for Ops (2)

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Budget requests “scrubbed” as part of the overall budget development.

- Priority is given to supporting operating experiments.
- Some compromises are made to ensure that there is some support for R&D for the future.
- Given the tight budgets, support for some technical facilities is severely squeezed.
- This is an on-going exercise, and further iterations will be necessary.

# Personnel Budgets

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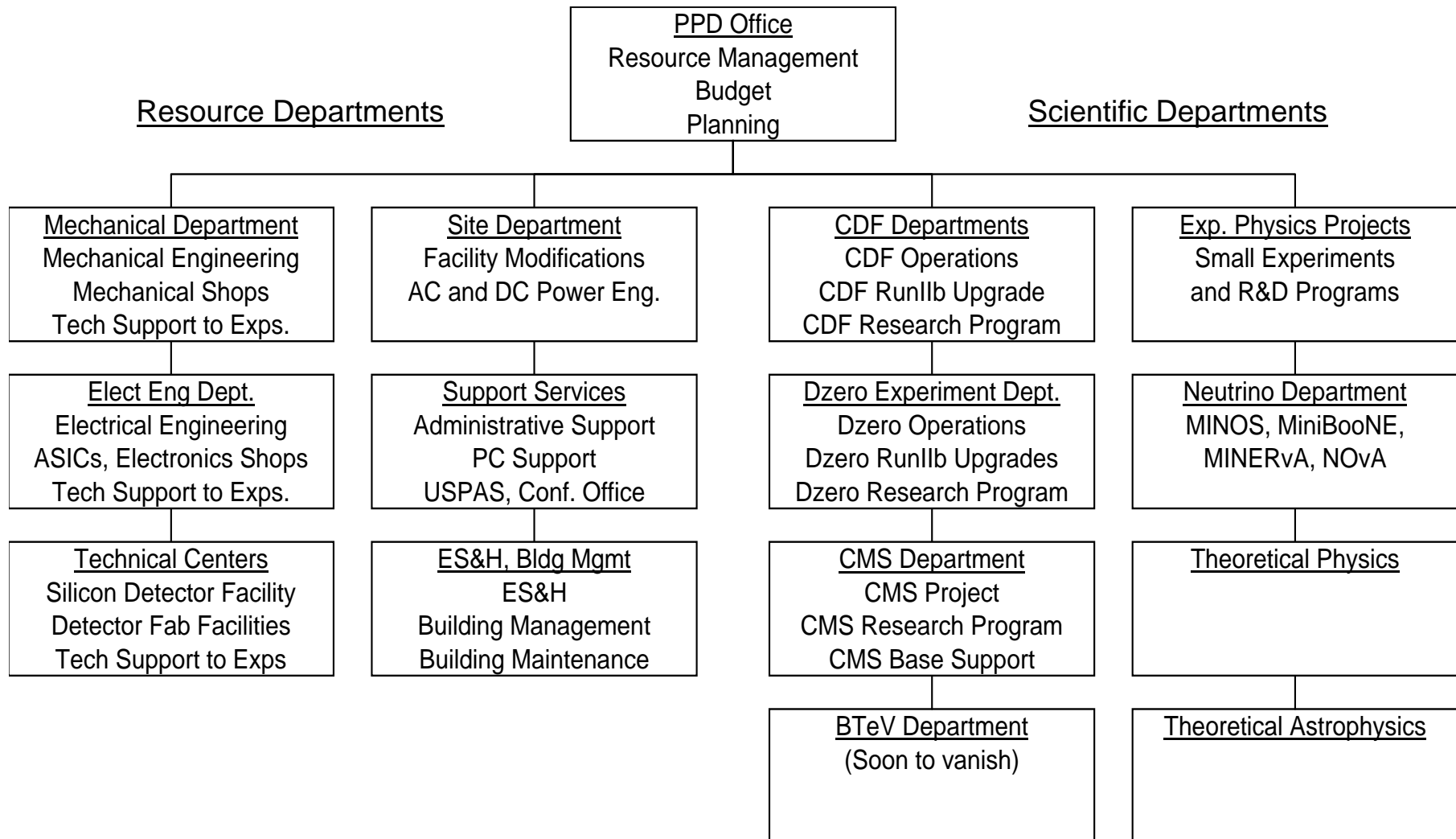
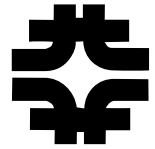


- Staffing levels for experimental operations are determined “bottoms-up.”  
=> Operating experiments are given priority.
- Substantial staff reductions are required to live within the “flat-flat” budget.  
=> Real loss of capability.  
Consolidation of technical groups will be required.
- Staff planning is an on-going process; what is shown here is a “snap-shot.”



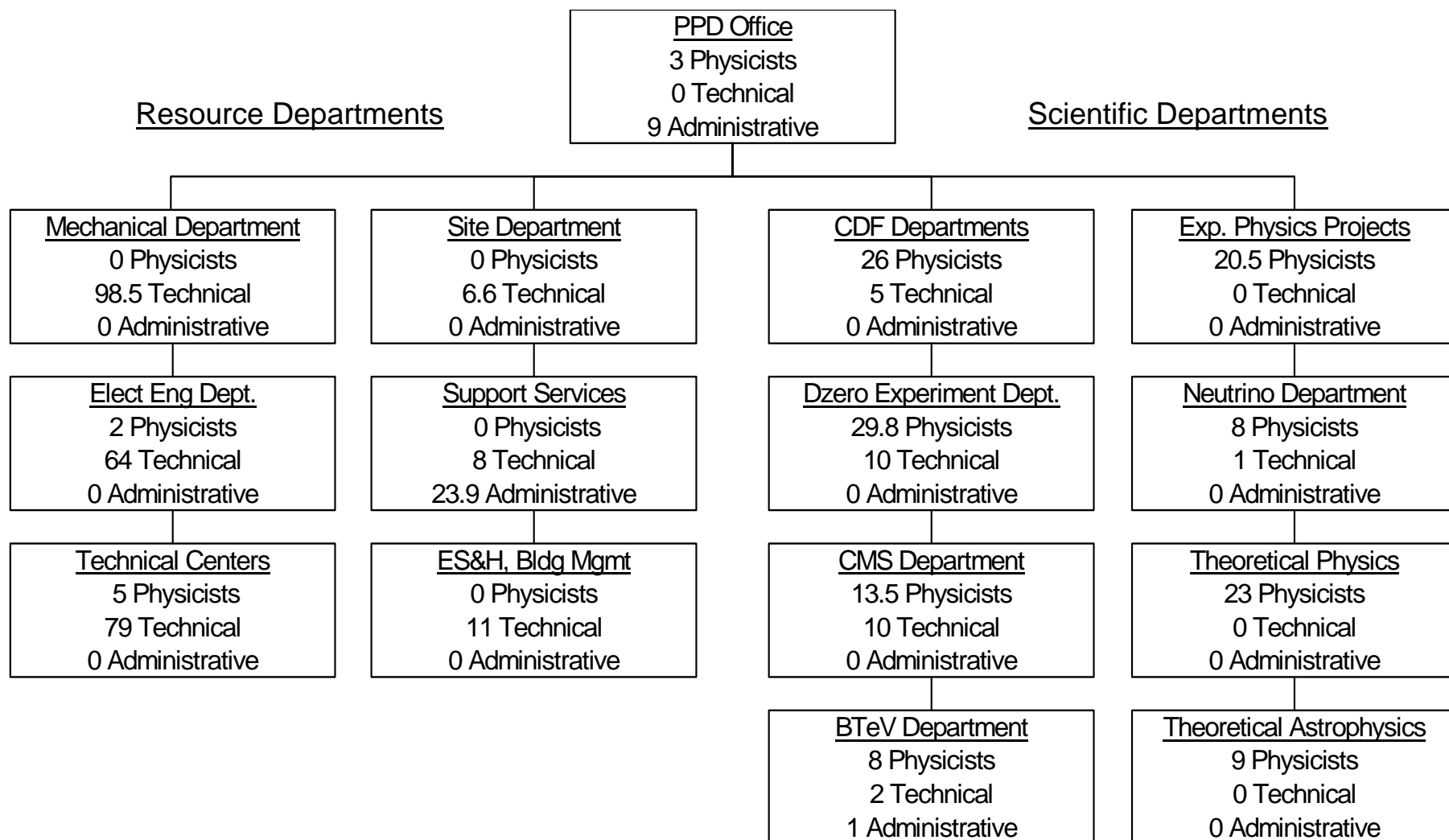
# PPD Organization

## Missions of the Departments

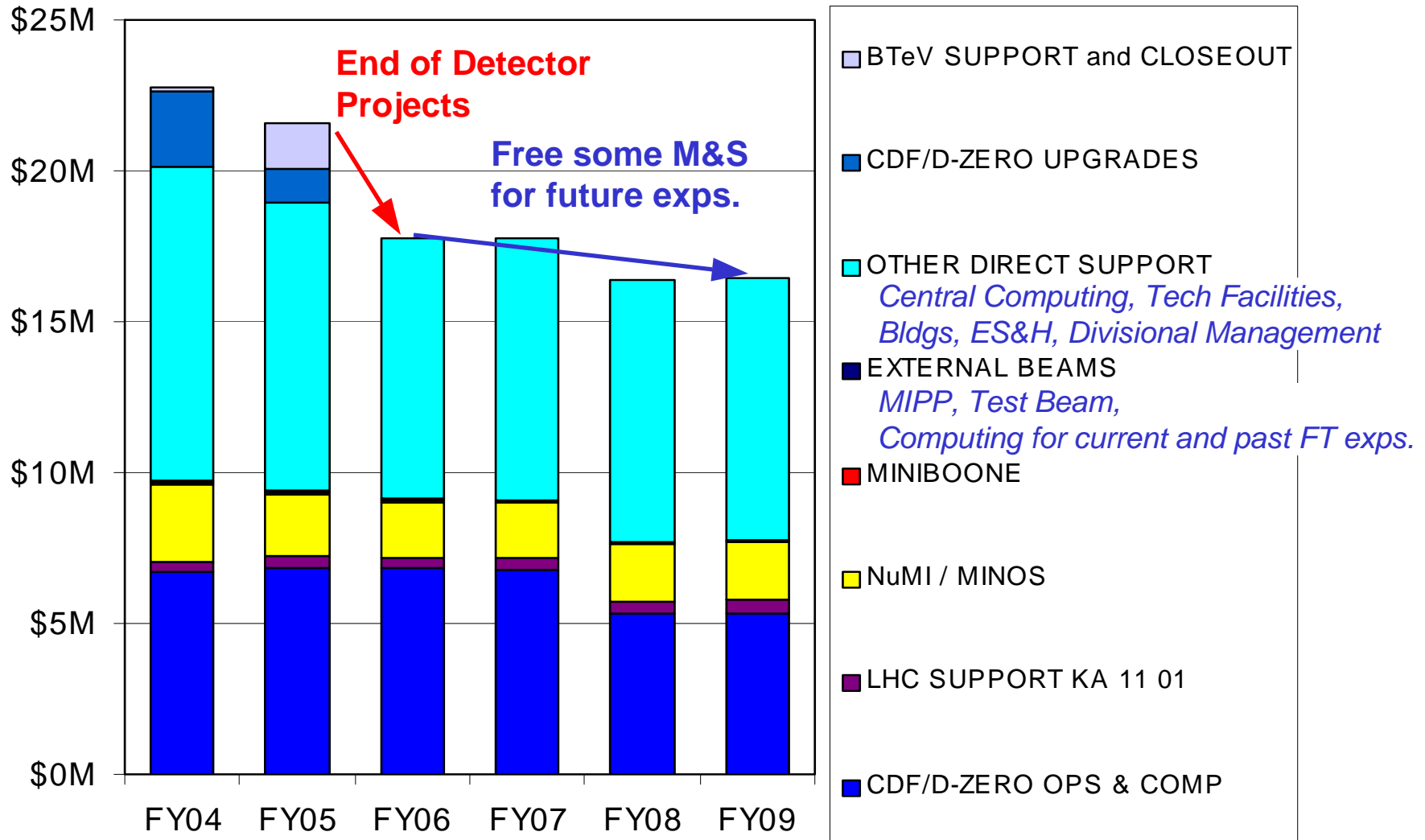
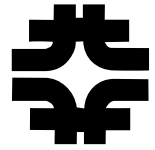


# PPD Organization

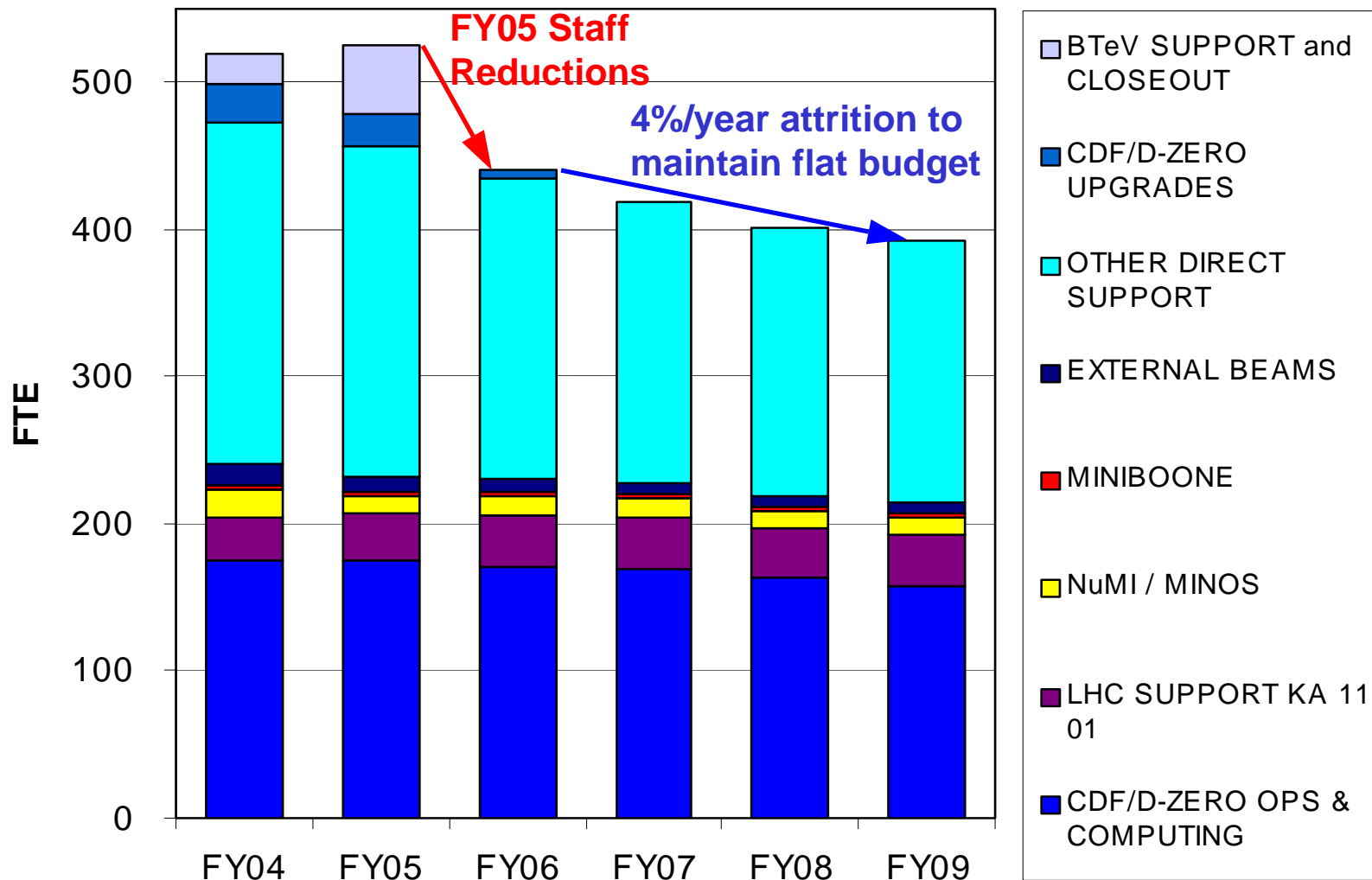
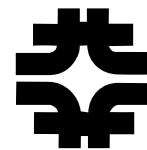
## Current Population of the Departments



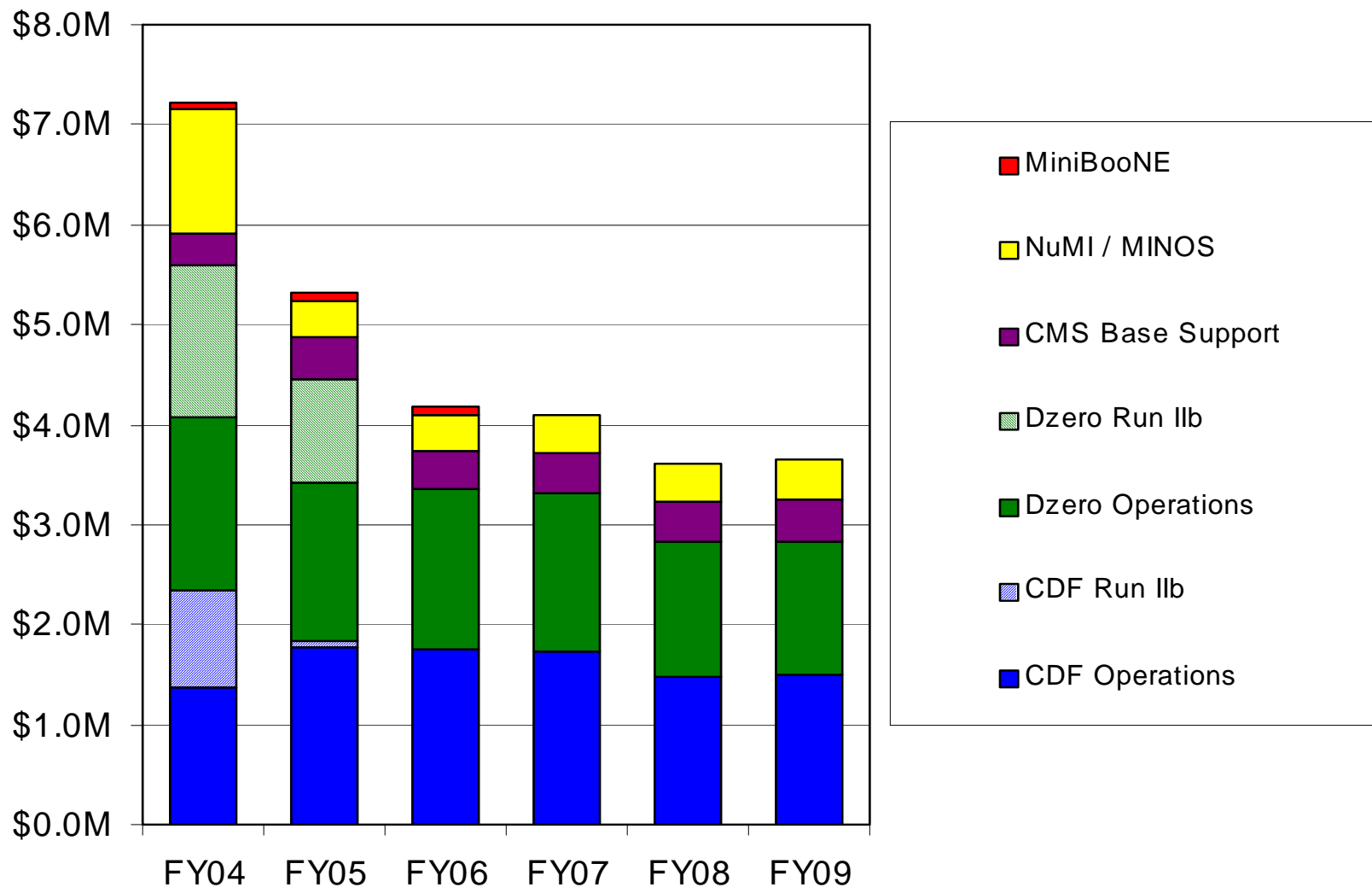
# M&S for Detector Ops, Upgrades, and Computing



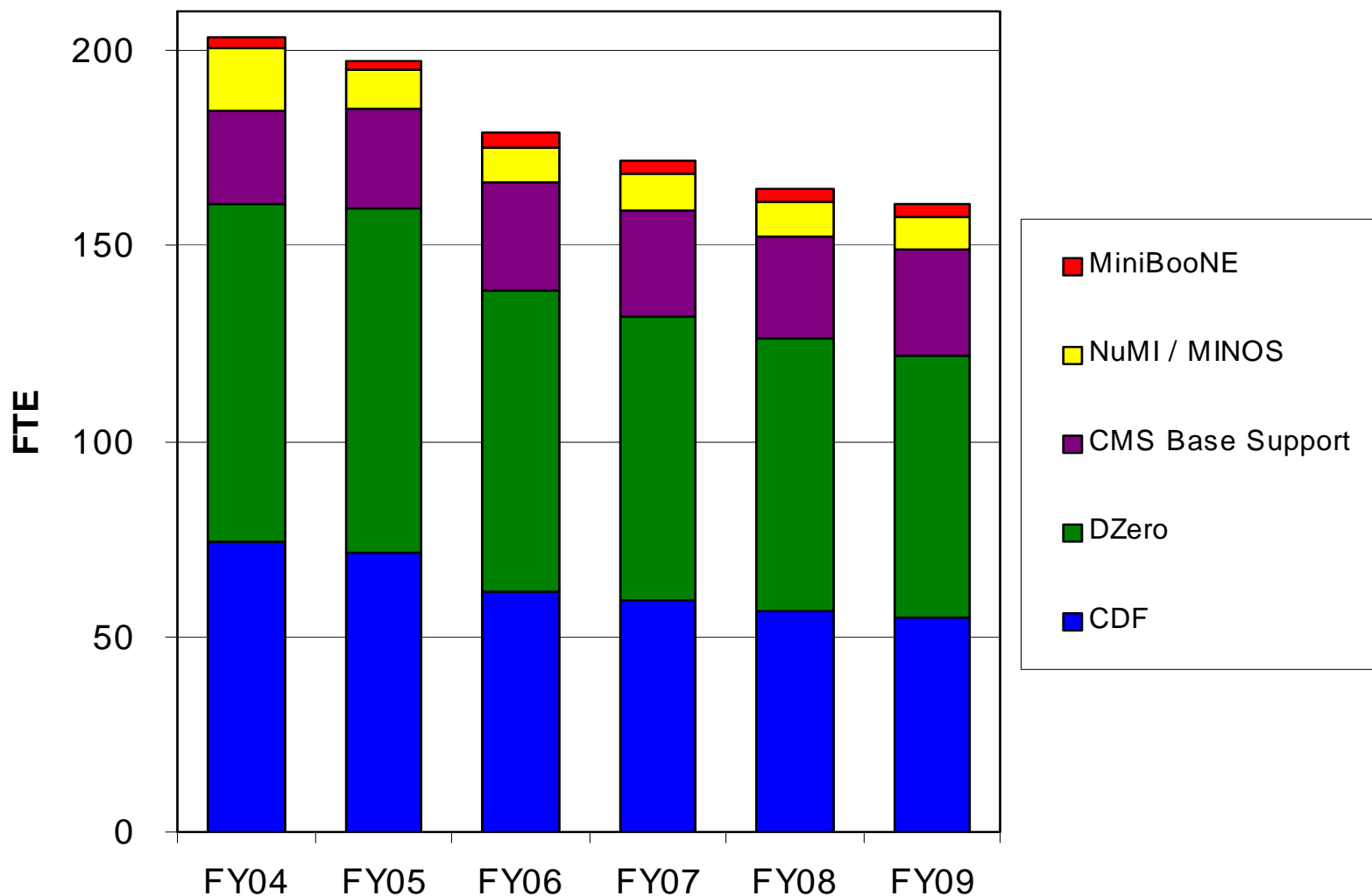
# Staffing for Detector Ops, Upgrades, and Computing



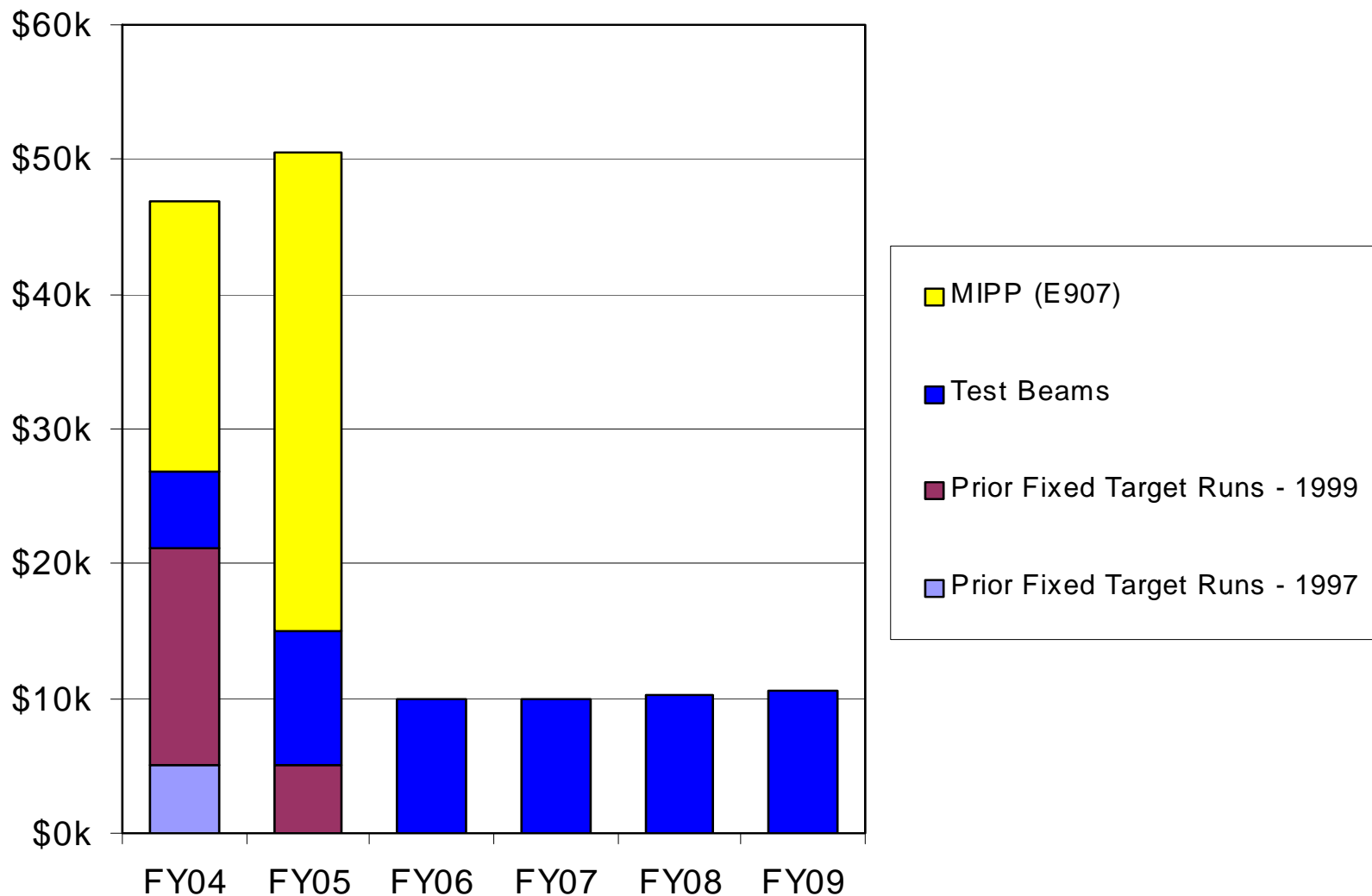
# M&S for Det Ops and Upgr: Collider and Neutrino Experiments



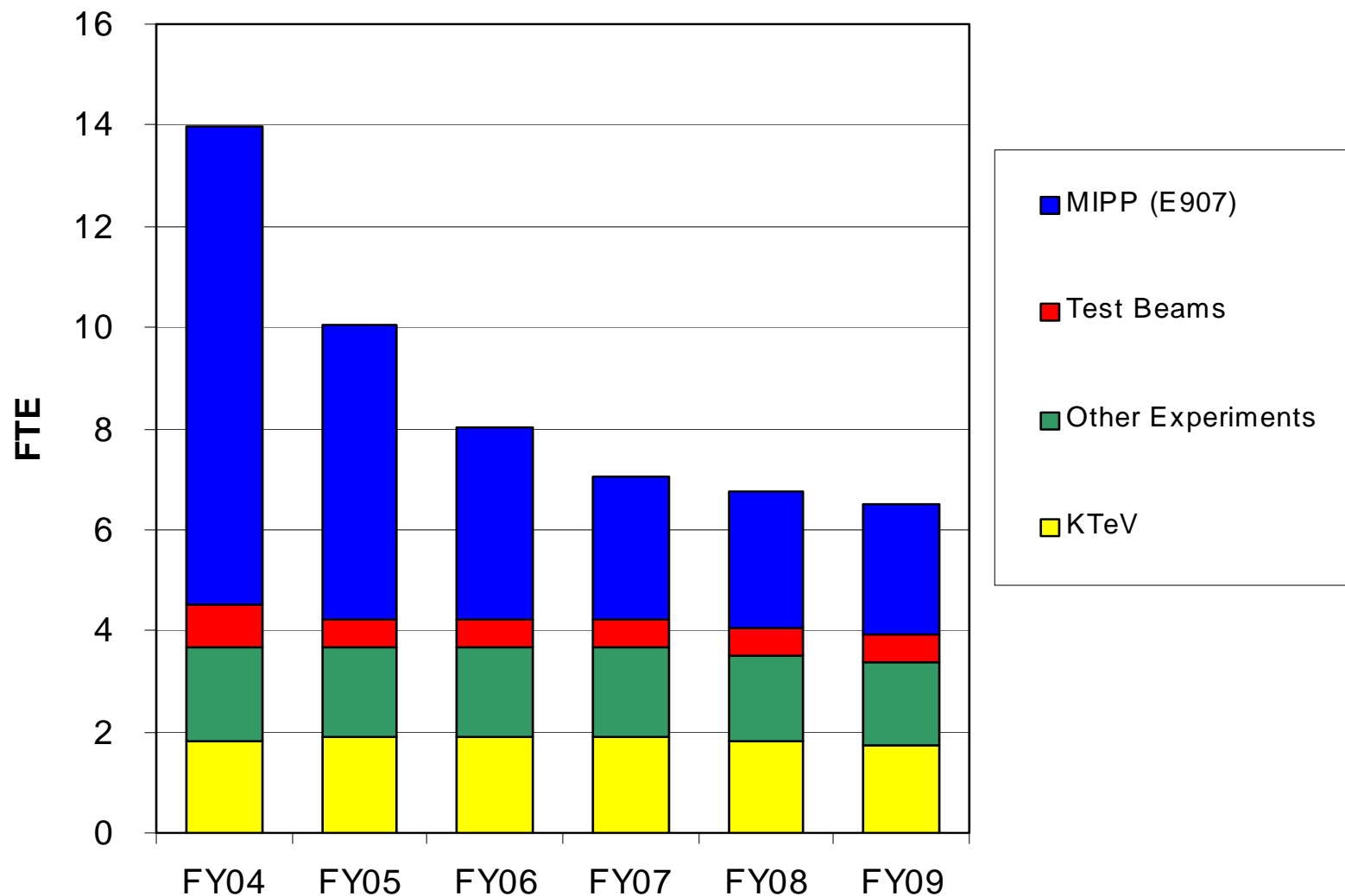
# Staff for Det Ops and Upgr: Collider and Neutrino Experiments



# M&S for Detector Operations: Fixed Target Experiments

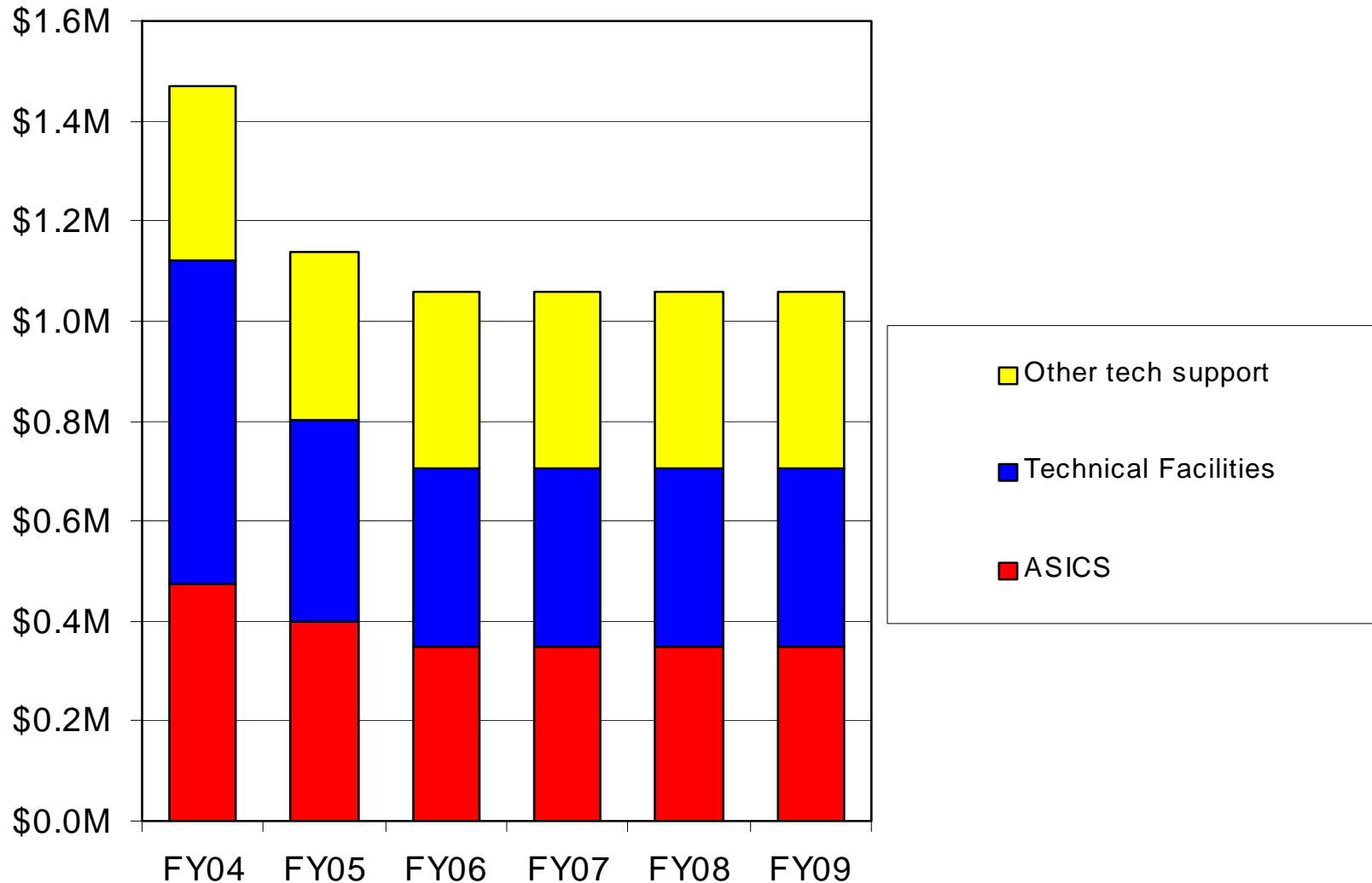
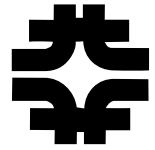


# Staffing for Detector Ops: Fixed Target Experiments

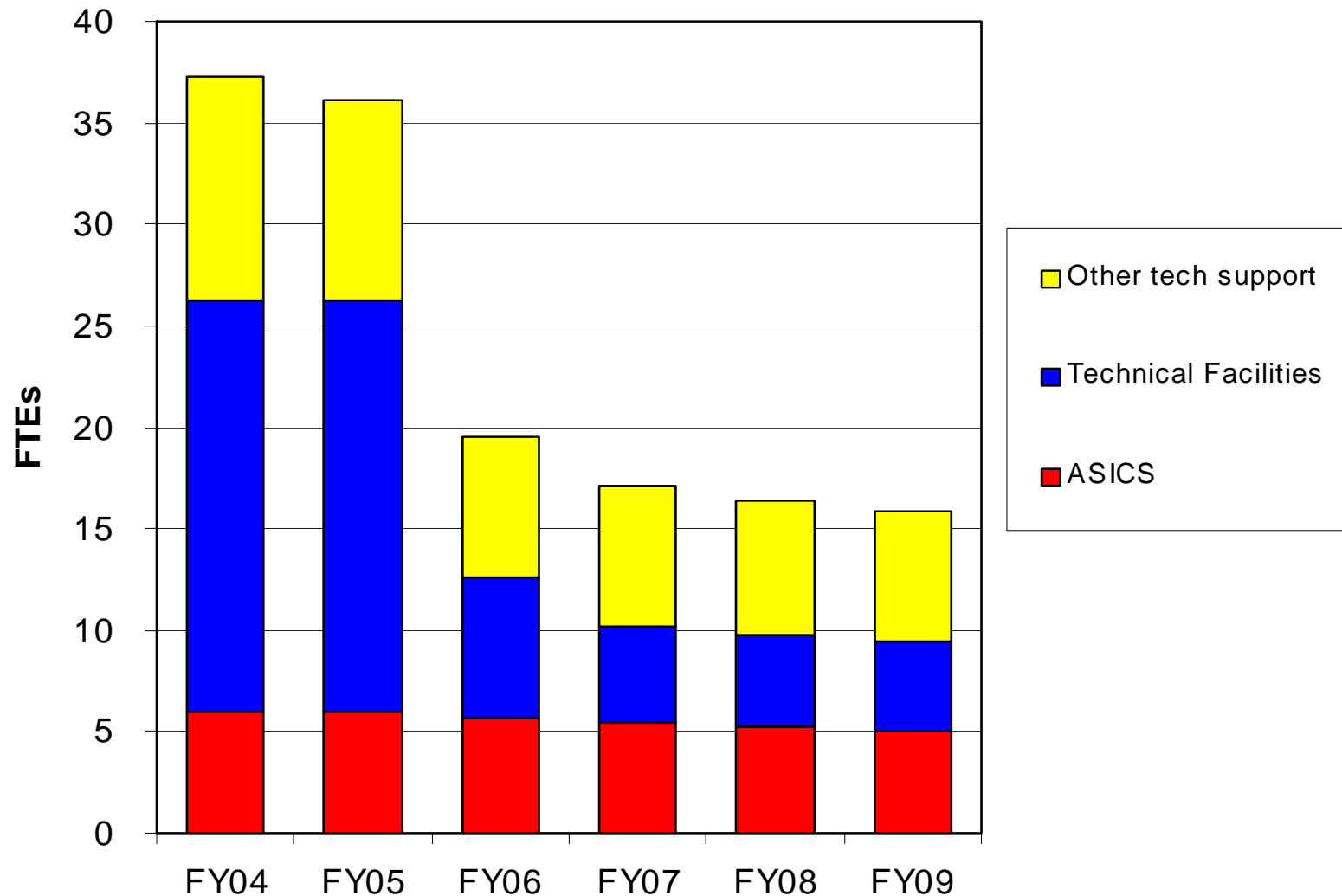
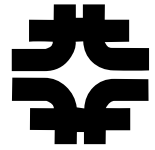




# M&S for Programmatic Support



# Staffing for Programmatic Support



# Risks

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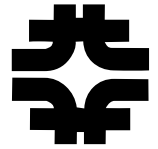


There are two big risks to detector operations:

- Possible (expected) reduced support by the CDF and D0 collaborations for operations once LHC start-up becomes imminent.
  - => MOU's, LPC are strategies keep collaborators here.
  - => Must stream-line operations.
- Staff and buying-power reductions of 3-4%/year with flat-flat budgets.
  - => Protect direct operations budgets.
  - => Consolidation of technical facilities will be necessary, losing real capabilities.

# Conclusions

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- Priority is given maintaining efficient operations in resource planning.
- Potential reduction of support of CDF and D0 by the collaborations is a serious concern.
- Flat budgets require staffing reductions and reduce buying power for materials.
- Reduced support for technical facilities will be necessary.
  - => Consolidation required to maintain efficiency.
- Adequate support for R&D for the future is at risk.